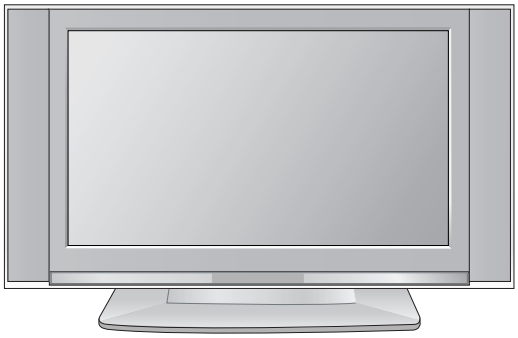
website:http://biz.LGservice.com
e-mail:http://www.LGEservice.com/techsup.html

LCD TV
SERVICE MANUAL

CHASSIS : ML-041F
FACTORY NAME : RZ-20LZ50C

MODEL : 20HIZ11

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Replacement Parts List.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

X-RAY Radiation

Warning:

The source of X-RAY RADIATION in this TV receiver is the High Voltage Section and the LCD PANEL.
For continued X-RAY RADIATION protection, the replacement panel must be the same type panel as specified in the Replacement Parts List.

To determine the presence of high voltage, use an accurate high impedance HV meter.

Adjust brightness, color, contrast controls to minimum.
Measure the high voltage.
The meter reading should indicate
23.5 ± 1.5KV: 14-19 inch, 26 ± 1.5KV: 19-21 inch,
29.0 ± 1.5KV: 25-29 inch, 30.0 ± 1.5KV: 32 inch
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.

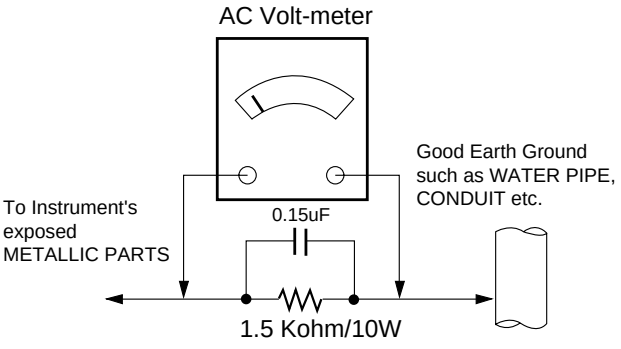
Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.
Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
   Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices.* Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuitboard printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This specification is applied to ML-041F chassis.

2. Requirement for Test

Testing for standard of each part must be followed in below condition.

(1) Temperature: 25°C ± 2°C
(2) Humidity: 65% ± 10%
(3) Power: Standard input voltage (AC 100-240V, 50/60Hz)
(4) Measurement must be performed after heat-run more than 30min.
(5) Adjusting standard for this chassis is followed a special standard.

3.General Specification

No.	Item	Content			Remark
1	LCD Module Feature	Maker		LPL	
		Type		TFT Color LCD Module	
		Active Display Area		20.1 inches(510.00) duaginal	
		Pixel Pitch [mm]		0.6375mm(H) x 0.6375mm(V) x RGB	
		Electrical Interface		TTL	LPL
		Color Depth		8bits, 16,777,216 color	
		Size[mm]		450(H) x 3348.7(V) x 20(D)	
		Surface Treatment		Glare, Hard Coating (3H)	
		Operating Mode		Normally Black	
		Black Light Unit		6CCFL(6 lamps)	
		R/T	Typ.	16ms(R.T : 7/10ms + F.T. : 18/20ms)	

4. Feature and Function

No.	Item	Specification	Remark
1	Teletext	TOP, FLOF	Top(option)
2	REMOCON	NEC Code	PAL/ NTSC
3	AV Input	1	Rear
4	S-Video Input	1	Rear
5	Component input	X	
6	PERI TV Connector	Full SCART : 1	Rear
7	Ear-phone output	1	
8	RJ-12	1	Only Commercial Model(SI-Box interface)
9	Discrete IR	1	
10	2 Carrier Stereo	BG, DK	
11	NICAM Stereo	BG, I, LL'	
12	2 Carrier Dual	BG, DK	
13	NICAM Dual	BG, I, LL'	
14	DW(Double Window) Mode	X	
15	MW(Multi Window) Mode	X	
16	Film Mode	X	
17	Noise Reduction	X	
18	Progressive Scan	0	
19	Motion Detection	X	
20	SRS WOW	X	
21	Swivel Speaker	X	
22	EZ-pip	X	
23	ARC	X	
24	DRP	X	
25	DCDI	X	
26	HDCP	X	

5. Mechanical specification

No		Item	Content			Remark
1	Product Dimension		Width (W)	Length (D)	Height (H)	
		Before Packing	597.5	222	460.6	With Stand
		After Packing	702	288	547	
2	Product Weight	Only SET	9.9kg			
		With BOX	12 kg			

6. Engineering Specification

No.	ITEM	Specification			Remark
1	ENERGE	SYNC(V/H)	VIDEO	POWER CONSUMPTION	LED COLOR
	Normal	On/On	Active	≤ 65W	GREEN
	Stand By,	Off/Off	Off	≤ 1W	LED
	Cut-off Switch off	-	-	0W	OFF
				PBP SWAP ▶ON/OFF	
	ITEM	Specification			Remark

7. Outgoing Condition

No	Item			Condition	Remark
1	Power			Off	
2	Volume Level			30	
3	Main Picture Input			TV	
4	Main Last Channel			Pr 01	
5	Mute			Off	
6	APC			Clear	
7	Station	Auto Program	Manual Program		
			Program Edit		
			Favorite Program	None	
8	Picture	PSM		Dynamic	
		Dynamic	Contrast	85	
			Brightness	60	
			Colour	70	
			Sharpness	70	
			Tint	0	NTSC OPTION
9	Sound	SSM		Flat	
		AVL		Off	
		Balance		0	
10	Special	Input		TV	
		Child Lock		Off	
		Auto Sleep		Off	
		Language		English(Area Management)	

8. Optical Character

No	Item	Specification						Remark
					LPL	CMO	AUO	
1	Viewing Angle	Right / Left			88/88	80/80	80/80	
	<CR≥10>	Up / Down			88/88	70/70	60/60	
2	Luminance	Luminance (cd/m2)			450	450	500	Typical
		Variation			1.3			MAX / MIN
3	Contrast Ratio				350	500	500	All white / All black
4	CIE Color Coordinates	White	WX	Typ.	0.289	0.285	0.31	
			WY	Typ.	0.335	0.293	0.33	
		RED	Xr	Typ.	0.692	0.692	0.64	
			Yr	Typ.	0.335	0.332	0.34	
		Green	Xg	Typ.	0.289	0.276	0.29	
			Yg	Typ.	0.583	0.601	0.61	
		Blue	Xb	Typ.	0.143	0.142	0.14	
			Yb	Typ.	0.909	0.075	0.07	

9. Preset CH information

		PIF[MHz]	SYSTEM	Video	Sound		TXT	NAME
					System	Mode		
LGE KUMI	PR 0	45.25	PAL-BG	PHILIPS		MONO		C 01
	PR 1	575.25	SECAM-DK	DIGITAL		DUAL		C 34
	PR 2	175.25	PAL-BG	PHILIPS		STEREO	FLOF	C 05
	PR 3	231.25	PAL-I	FUBK		MONO		S 11
	PR 4	675.25	NTSC-M	DIGITAL		MONO		C 48
	PR 5	62.25	SECAM-BG	PHILIPS		DUAL		C 04
	PR 6	189.25	PAL-BG	Crosshatch	NICAM	DUAL	FLOF	C 07
	PR 7	703.25	PAL-BG	RGB, WHITE		MONO		C 50
	PR 8	719.25	PAL-BG	MATRIX C/B	NICAM	STEREO		C 52
	PR 9	631.25	PAL-I	PHILIPS	NICAM	STEREO		C 41
	PR 10	807.25	PAL-I	Crosshatch	NICAM	STEREO		C 48
	PR 11	102.25	PAL-BG	RED		MONO		BLN2
	PR 12	55.75	PAL-L	Crosshatch		MONO		C 02
	PR 13	152.75	PAL-L	PHILIPS	NICAM	DUAL		S 07
	PR 14	591.25	PAL-L	Colorbar	NICAM	STEREO		C 48
LGEMA	PR 31	175.25	PAL-B	Crosshatch+Circle	NICAM	DUAL	FLOF	C 05
	PR 32	711.25	PAL-G	DIGITAL	NICAM	STEREO	FLOF	C 51
	PR 33	631.25	PAL-I	Crosshatch	NICAM	STEREO	FLOF	C 41
	PR 34	93.25	SECAM-D	DIGITAL		MONO		C 05
	PR 35	62.25	PAL-B	Crosshatch	A2	STEREO		C 04
	PR 36	551.25	PAL-G	Colorbar	A2	DUAL	TOP	C 31
	PR 37	471.25	PAL-I	DIGITAL		STEREO	FLOF	C 21
	PR 38	855.25	PAL-I	DIGITAL		MONO	FLOF	C 69
	PR 39	687.25	NTSC-M	Crosshatch+Circle		MONO		C 50
	PR 40	200.25	SECAM-L	DIGITAL		MONO		C 08
	PR 41	663.25	SECAM-L	DIGITAL	NICAM	DUAL		C 45
	PR 42	503.25	PAL-B	Crosshatch(16:9)		MONO	FLOF	C 25
	PR 43	687.25	NTSC-M	DEM+Circle		MONO		C 50
	PR 44	189.25	PAL-B			STEREO		C 07
	PR 45	327.25	PAL-D		A2	STEREO	FLOF	S 24
	PR 46	615.25	PAL-B		NICAM	STEREO	FLOF	C 39

ADJUSTMENT INSTRUCTION

1. Application Object

This document is applied to 20" LCD TV which is manufactured in Monitor Factory or is produced on the basis of this data.

2. Designation

2.1 The adjustment is according to the order which is designated and which must be followed, according to the plan which can be changed only on agreeing.
2.2. Power Adjustment: Free Voltage
2.3. Magnetic Field Condition: Nil.
2.4. Input signal Unit: Product Specification Standard
2.5. Reserve after operation: Above 30 Minutes
2.6. Adjustment equipments: Pattern Generator (801GF, MSPG925F), DDC Adjustment Jig equipment

3. Adjustment

3.1 Adjustment Details

The machine can be adjusted by itself automatically but even for self -adjustment it needs someone to operate it.

3.2 Video signal Gain/Offset Adjustment (Execute first of all in adjustment process)

3.2.1 Adjustment Preparation

- Execution of RF no signal during Heat Run over 30min
- Connect to the LCD TV SCART input terminal with Patten Generator(MSPG-925FS)
- Convert INPUT MODE to AV1

3.2.2 Auto Gain/Offset Adjustment (Input signal Level : 730mV)

- To use Pattern Generator(MSPG925FS), Apply Model : 202 PAL_BDGH, Patten 19 , white/black top and bottom pattern signal (Don't apply 16 gray signal)
- Press IN-START Key by using the Remote Controller(SVC), after converting to Adjustment-Mode, press VOL+ Key consecutively in Auto-Gain Menu.
- After adjustment is complete, pressing enter key, stores and completes the process.

3.2.3 Low Gray Adjustment

- Apply Gray-Level(Model : 202 PAL_BDGH, pattern : 59) signal by using Pattern Generator(MSPG-925FS)
- Check weather color-coordinates(x : 0.283, y : 0.298, ±0.005) is operated by using CA-110 equipment
- If color-coordinates is not in Spec, adjust color-coordinates(x : 0.283, y : 0.298, ±0.005) by adjusting Red Offset, Blue Offset

3.2.4 White Balance Adjustment

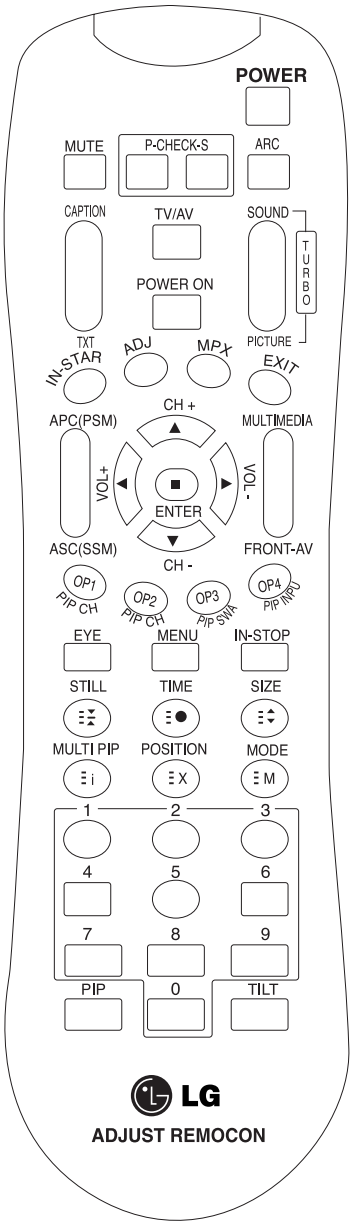
- Apply 95% White (Model : 202 PAL_BDGH, pattern : 47, luminance spec : 250cd/m^2 over) signal by using Patten Generator(MSPG925FS)
- Check whether color-coordinates(x : 0.283, y : 0.298, ±0.005) is operated by using CA-110 equipment
- If color-coordinates is not in Spec, adjust color-coordinates(x : 0.283, y : 0.298, ±0.005) by adjusting Red Gain, Blue Gain
- All adjustment takes color-coordinates with based on G, changing R and B If it is not adjusted, adjust with fixed B, changing G and R.

3.2.4 RJ-12 Jig Adjustment

- Locating the switch(sw110) at TV.
- Inserting the RJ-12 connector into the RJ-12 Jack.
  - It'll be OK, if the Power LED is red.
- Checking IR behavior with a remote-controller.
  - It'll be OK, if the IR LED is bright and consecutively the OK LED is bright.
- Checking the communication between a TV set and a notebook pc by pushing the sw101.
  - It'll be OK, if firstly TxD & RxD's LED light flicker and soon the Power LED is green.

SVC REMOCON

NO	KEY	FUNTION	REAMARK
1	POWER	To turn the TV on or off	
2	POWER ON	To turn the TV on automatically if the power is supplied to the TV. (Use the POWER key to deactivate): It should be deactivated when delivered.	
3	MUTE	To activate the mute function.	
4	P-CHECK	To check TV screen image easily.	Shortcut keys
5	S-CHECK	To check TV screen sound easily	Shortcut keys
6	ARC	To select size of the main screen (Normal, Spectacle, Wide or Zoom)	Shortcut keys
7	CAPTION	Switch to closed caption broadcasting	
8	TXT	To toggle on/off the teletext mode	
9	TV/AV	To select an external input for the TV screen	
10	TURBO SOUND	To start turbo sound	
11	TURBO PICTURE	To start turbo picture	
12	IN-START	To enter adjustment mode when manufacturing the TV sets.	Use the AV key to enter the screen W/B adjustment mode.
		To adjust the screen voltage (automatic): In-start → mute → Adjust → AV(Enter into W/B adjustment mode)	
		W/B adjustment (automatic): After adjusting the screen → W/B adjustment → Exit two times (Adjustment completed)	
13	ADJ	To enter into the adjustment mode. To adjust horizontal line and sub-brightness.	
14	MPX	To select the multiple sound mode (Mono, Stereo or Foreign language)	
15	EXIT	To release the adjustment mode	
16	APC(PSM)	To easily adjust the screen according to surrounding brightness	
17	ASC(SSM)	To easily adjust sound according to the program type	
18	MULTIMIDIA	To check component input	Shortcut keys
19	FRONT-AV	To check the front AV	Shortcut keys
20	CH ±	To move channel up/down or to select a function displayed on the screen.	
21	VOL ±	To adjust the volume or accurately control a specific function.	
22	ENTER	To set a specific function or complete setting.	
23	PIP CH-(OP1)	To move the channel down in the PIP screen. To use as a red key in the teletext mode	
24	PIP CH+(OP2)	To move the channel in the PIP screen To use as a green key in the teletext mode	
25	PIP SWAP(OP3)	To switch between the main and sub screens To use as a yellow key in the teletext mode	
26	PIP INPUT(OP4)	To select the input status in the PIP screen To use as a blue key in the teletext mode	
27	EYE	To set a function that will automatically adjust screen status to match the surrounding brightness so natural color can be displayed.	
28	MENU	To select the functions such as video, voice, function or channel.	
29	IN-STOP	To set the delivery condition status after manufacturing the TV set.	
30	STILL	To halt the main screen in the normal mode, or the sub screen at the PIP screen. Used as a hold key in the teletext mode (Page updating is stopped.)	
31	TIME	Displays the teletext time in the normal mode Enables to select the sub code in the teletext mode	
32	SIZE	Used as the size key in the PIP screen in the normal mode Used as the size key in the teletext mode	
33	MULTI PIP	Used as the index key in the teletext mode (Top index will be displayed if it is the top text.)	
34	POSITION	To select the position of the PIP screen in the normal mode Used as the update key in the teletext mode (Text will be displayed if the current page is updated.)	
35	MODE	Used as Mode in the teletext mode	
36	PIP	To select the simultaneous screen	
37	TILT	To adjust screen tilt	Shortcut keys
38	0~9	To manually select the channel.	

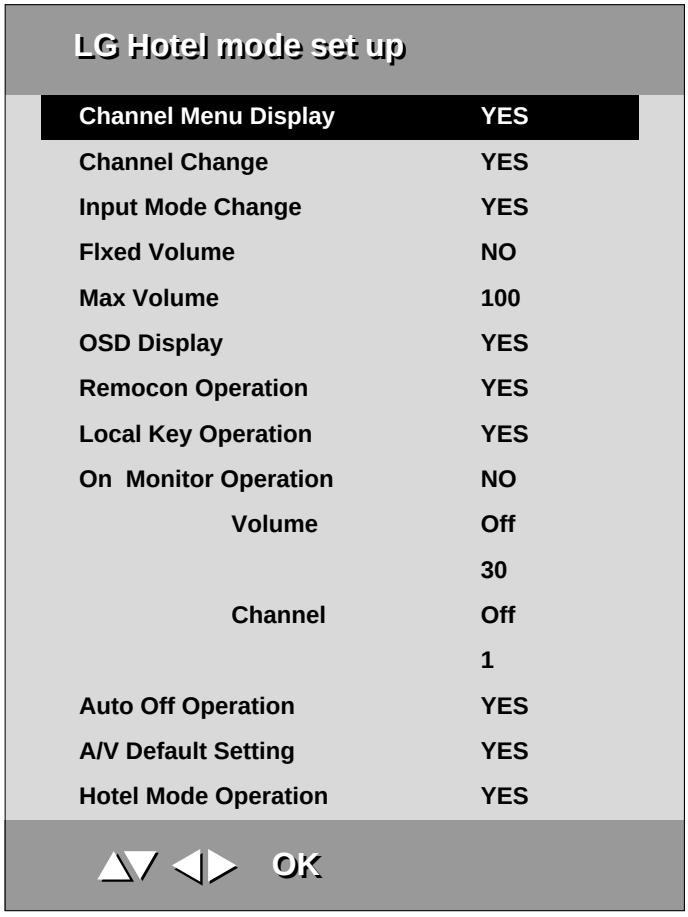


HOTEL MODE

1. Hotel Option Configuration

When using the service remote control, press the In-Start key, and when using the user remote control, press the menu of the local key and the menu of the user remote control simultaneously for 10 seconds to enter the service mode.

Press the menu key one more time with the service mode OSD displayed and move th the hotel option setup page to set up.



1.1. Channel Menu Display

- Decide to enter 'Channel Menu' or not in the 'Main Menu' by setting 'Channel Menu Display' as Yes(Enter Possible) or No(Enter Impossible) on the "LG Hotel Mode" OSD.

1.2. Channel Change

- Decide to change channel or not by setting 'Channel Change' as Yes(Change Possible) or No(Change Impossible) when present source is TV.
- When 'Channel Change' is set to No(Change Impossible), Channel Key, Numeral Key, List Key, Q.View Key doesn't work and entering 'Channel Menu' in the Main Menu OSD is impossible.
- When 'Channel Change' is set to Yes(Change Possible), Channel Key, Numeral Key, List Key, Q.View Key does work and entering 'Channel Menu' in the Main Menu OSD is possible.
- When 'Channel Change' is set to No(Change Impossible), 'Channel' item in 'On Time' menu will be fixed.
- When 'Channel Change' is set to No(Change Impossible), entering 'Channel Menu' in the 'Main Menu' OSD is impossible regardless of 'Channel Menu Display' item.

1.3. Input Source Change

- Decide to change input source or not by setting 'Input Source Change' as Yes(Change possible) or No(Change impossible).
- When 'Input Source Change' is set to No(Change impossible), TV/AV key and Multimedia key doesn't work, and entering 'Input' item in the 'Main Menu OSD' is impossible.
- When 'Input Source Change' is set to No(Change impossible), user's input (pressing Channel key, numeral key, List key, Q.View key in all Input source except TV source) doesn't work and when entering 'Channel Menu' item in the 'Main Menu OSD' except TV mode doesn't accepted. Because entering 'Channel Menu' item makes present mode as TV mode even though present mode is not TV mode. for the function that turns to TV mode doesn't work.
- When 'Input Source Change' is set to Yes(Change possible), then changing input source is available.
- When 'Input Source Change' is set to No(Change Impossible), TV set always turns on fixed input source and volume information regardless of already set channel information.
- When 'Input Source Change' is set to No(Change Impossible), entering 'Channel Menu' except TV mode doesn't possible regardless of 'Channel Change' or 'Channel Menu Display' item.

1.4. Fixed Volume

- Decide to fix volume or not by setting 'Fixed Volume' as Yes(Change possible) or No(Change impossible).
- When 'Fixed Volume' is set to Yes(Set), it fixed present volume and volume key doesn't work.
- When 'Fixed Volume' is set to Yes(Set), volume doesn't change during 'Mute On' but release mute.
- When 'Fixed Volume' is set to No(Not Set), user can change volume.
- In the case of both 'Fixed Volume' and 'On Time' is set to Yes(Set), but just the value is different, then Fixed Volume value has priority.
- When 'Fixed Volume' is set to Yes(Set), user cannot select 'Max Volume' item.
- When 'Fixed Volume' is set to Yes(Set), 'On Time' menu's Volume item fixed to present volume.

1.5. Max Volume

- Decide 'Max Volume' between changing range 0 ~ 100.
- When 'Max Volume' is set, user can change up to set volume value.
- In the case of 'Fixed Volume' is set to Yes, 'Max Volume' item cannot be selected.
- When 'Max Volume' is set, volume just goes up to the 'Max Volume' value in 'On Time Menu'.

1.6. OSD Display

- Decide to display OSD or not by setting 'OSD Display' as Yes(Mark) or No(No Mark).
- When 'OSD Display' is set to No(No Mark), just Channel OSD and STEREO OSD doesn't display.

1.7. Remocon (Remote Control) Operation

- Decide to operate Remote Control or not by setting "Remocon Operation" as Yes(Work) or No(Do Not Work).
- When "Remocon Operation" is set to No(Do Not Work), all remocon key doesn't work include Power Key.
- When "Remocon Operation" is set to No(Do Not Work), In-start key and In-stop key still work.
- When "Remocon Operation" is set to No(Do Not Work), 'Remocon Operation' working in service mode is available.
- When "Remocon Operation" is set to Yes(Work), all Remocon keys work properly.

1.8. Local Key Operation

- Decide to operate 'Local Key' or not by setting "Local Key Operation" as Yes(Work) or No(Do Not Work).
- When 'Local Key Operation' is set to No(Do Not Work), all Local Key doesn't work include Power Key.
- When 'Local Key Operation' is set to No(Do Not Work), Local Key working in service mode is still available.
- When 'Local Key Operation' is set to Yes(Work), all Local Key working is available.
- When set both 'Local Key' and 'Remocon Operation' as No(Do Not Work), Power key of Remocon work as exceptional case.

1.9. On Monitor Operation

- Decide to set Channel and Volume value or not those are displaying when Power On by setting 'On Monitor Operation' as Yes(Work) or No(Do Not Work).
- When 'On Monitor Operation' is set to No(Do Not Work), user cannot enter inside of 'channel' and 'volume' item.
- When 'On Monitor Operation' is set to Yes(Work), user can enter inside of menu and set value.
- When 'Channel' item of 'On Monitor Operation' is set to No(Do Not Work), and 'On Monitor Operation' is set to Yes(Work), then TV saves present input source and always turn on as the saved input source when turn on. If user enters Hotel Mode as other input source that user wants (except TV mode), and set 'Channel' item as Yes(Work), then it will work.
- When 'On Monitor Operation' is set to No(Do Not Work), TV will be turned on as last memorized channel or input source.

1.10. Channel

- Decide to turn on TV as set channel or last memorized channel or not by setting 'Channel' as On(Work) or Off(Do Not Work).
- When 'On Monitor Operation' is set to Yes(Work), then user can enter 'Channel' and set the value.
- When 'On Monitor Operation' is set to On(Work), setting 'Channel' value of ''On Monitor Operation' is possible and TV always turns on as set 'Channel' value.
- When 'On Monitor Operation' is set to Off(Do Not Work), setting 'Channel' value of 'On Monitor Operation' is impossible and TV turns on last memorized channel.
- If user wants to turn on by other Input source except TV, change Input source as you want and enter to 'Hotel Mode', then select 'Channel' item as Off(Do Not Work) or Do Not select this item On(Work) from the beginning.
- In the case of both 'Channel' and 'On Time' is set, but just the value is different, then 'Channel' value has priority.

1.11. Auto Off Operation

- If there's no key input during 2 hours after turn on TV by 'Power On' function of the 'On Time', then turn off TV by 'Auto Off' function of 'Time Menu'. This item decide to turn on TV by 'Auto Off Operation' regardless of 'Auto off' function of 'Time Menu' or not by setting as Yes(Work) or No(Do Not Work).
- When 'Auto Off Operation' is set to Yes(Work), 'Auto Off Operation' work as configuration.
- When 'Auto Off Operation' is set to No(Do Not Work), 'Auto Off Operation' Do Not work regardless of configuration.

1.12. A/V Default Setting

- Decide whether to use default data or user data that are program, volume, picture, audio and ARC.
- Be selected Yes(Work) or No(Do Not Work).
- This item has lower priority than the 'On Monitor Operation' in hotel menu.
- When 'A/V Defualt Setting' is set to Yes(Work), TV will be turned on with default data.
- When 'A/V Defualt Setting' is set to No(Do Not Work), TV will be turned on with some values changed by last user or set by you in hotel menu.

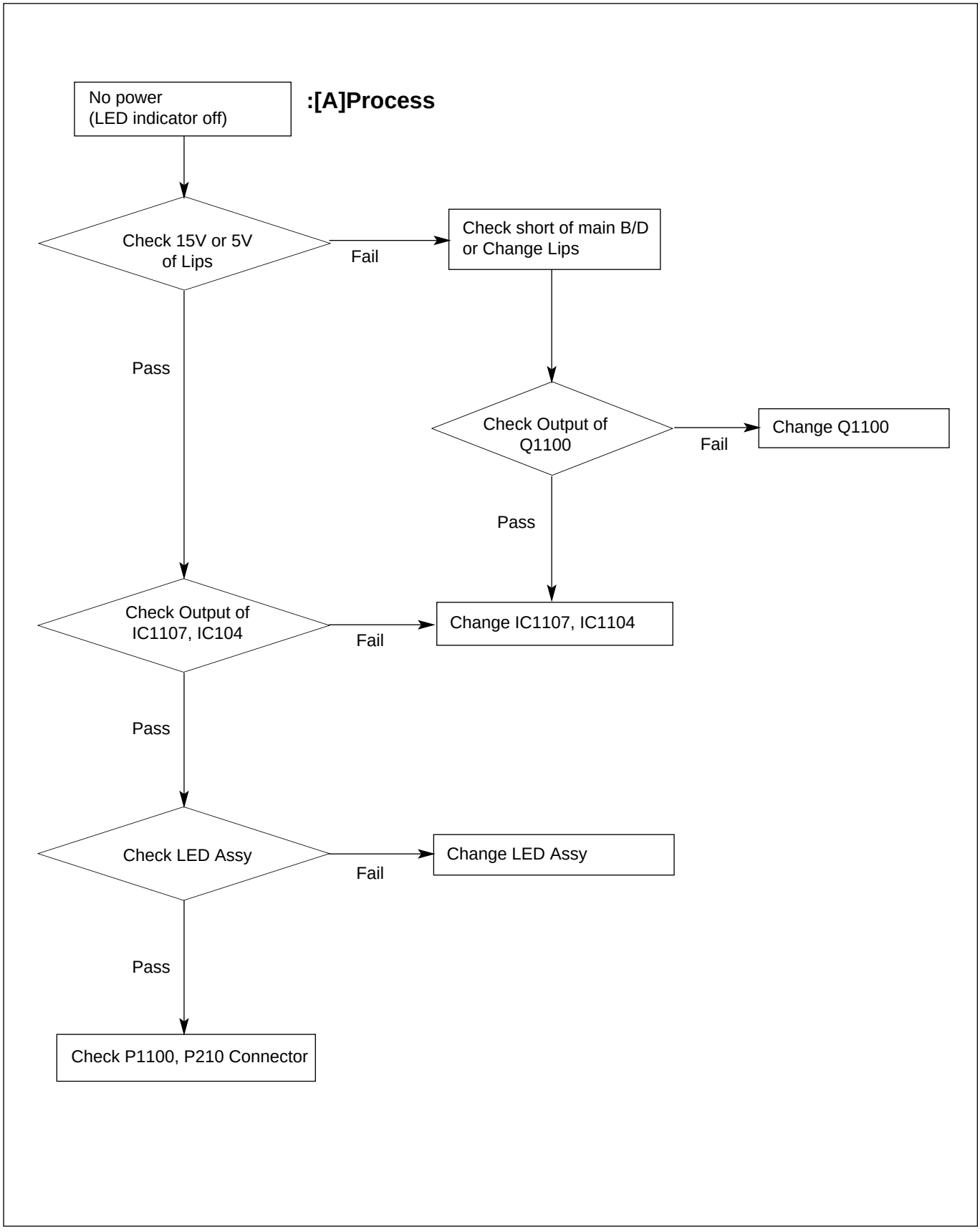
1.13. Hotel Mode Operation

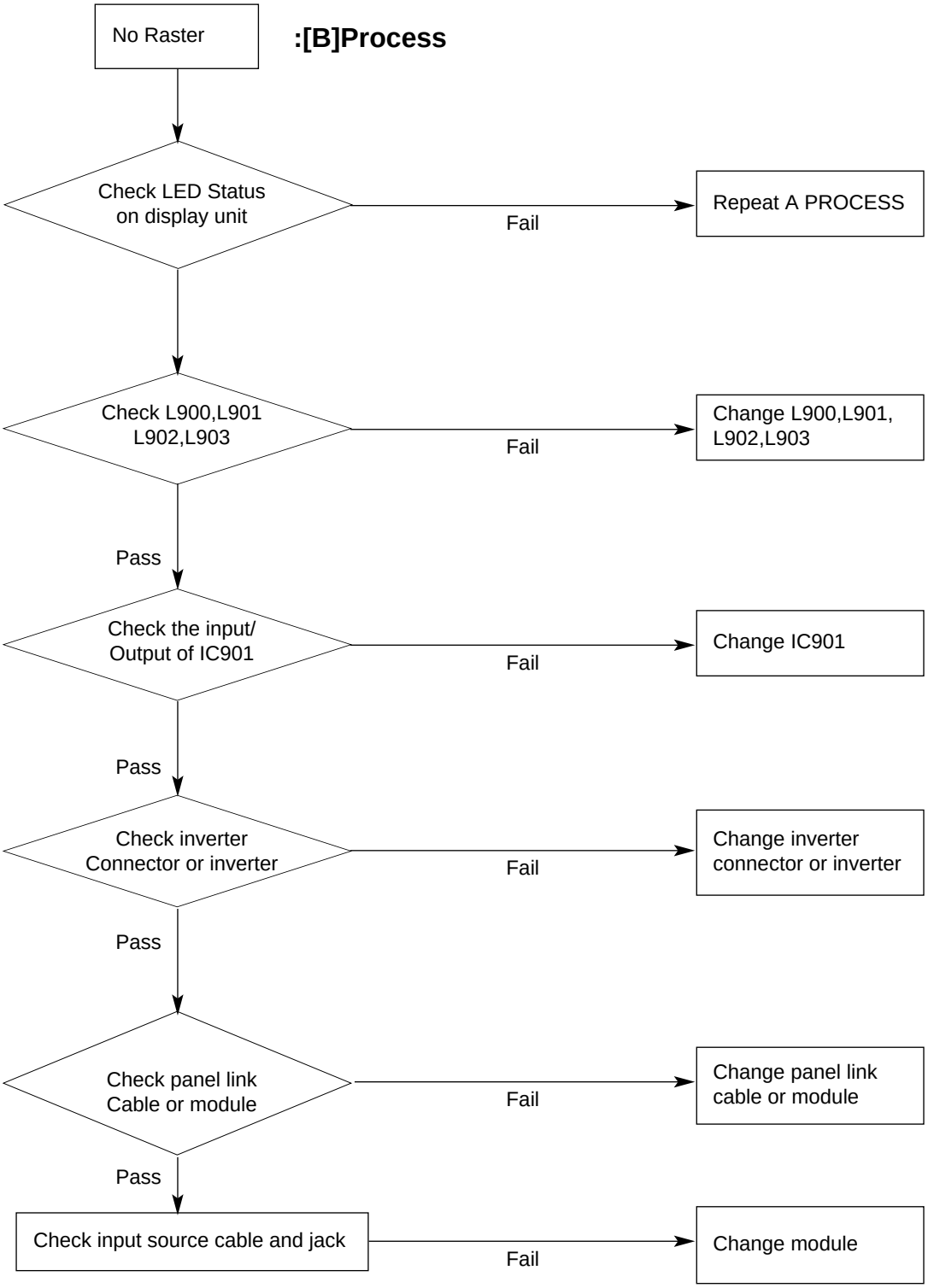
- Decide to work all functions of 'Hotel Mode Operation' or not by setting 'Hotel Mode Operation' as Yes(Work) or No(Do Not Work).
- When 'Hotel Mode Operation' is set to Yes(Work), all functions of Hotel Mode apply.
- When 'Hotel Mode Operation' is set to No(Do Not Work), all functions of Hotel Mode Do Not apply.

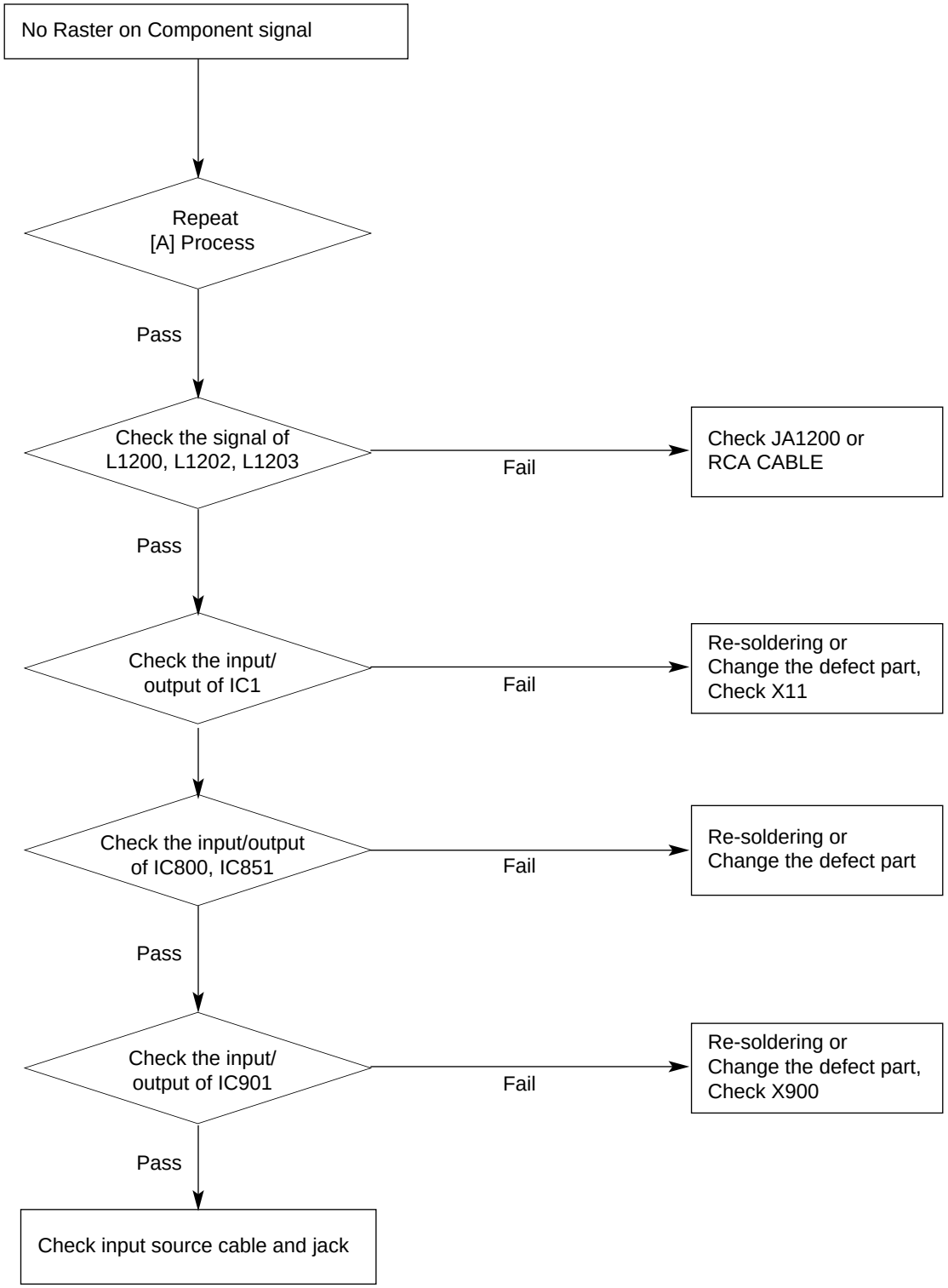
2. Initial Configuration and Configuration Detail

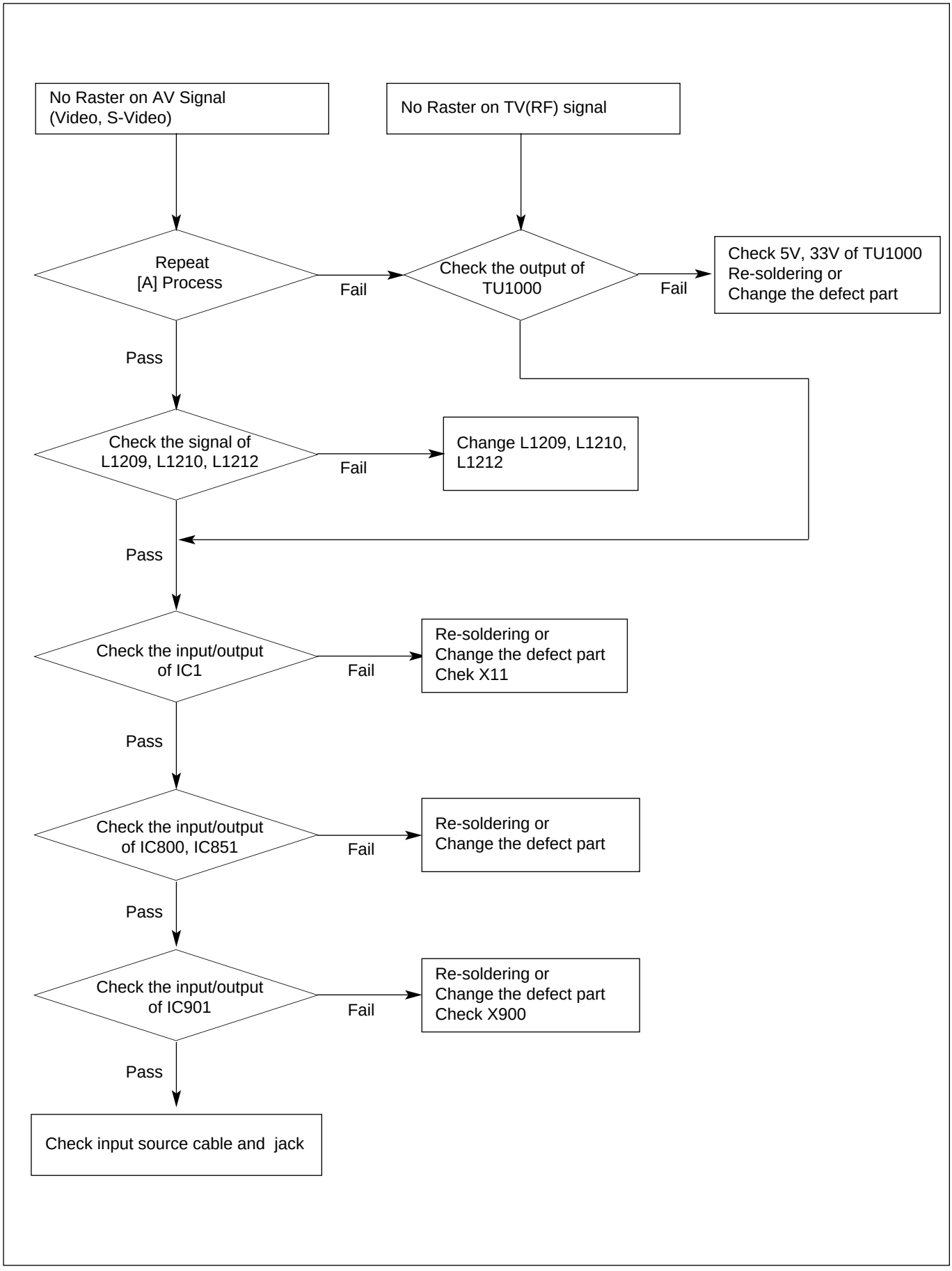
Setting Item	Activated	Deactivated	Default
Channel Menu	Yes	No	Yes
Channel Change	Yes	No	Yes
Input Mode Change	Yes	No	Yes
Fixed Volume	Yes	No	No
Max Volume	0 ~ 100		100
OSD Display	Yes	No	Yes
Remote Operation	Yes	No	Yes
Local Key Operation	Yes	No	Yes
On Monitor Operation	Yes	No	No
Volume	On	Off	Off
Volume Level	0 ~ 100		30
Channel	On	Off	Off
Channel Number	0 ~ 99		1
Auto Off Operation	Yes	No	Yes
Hotel Mode Operation	Yes	No	No

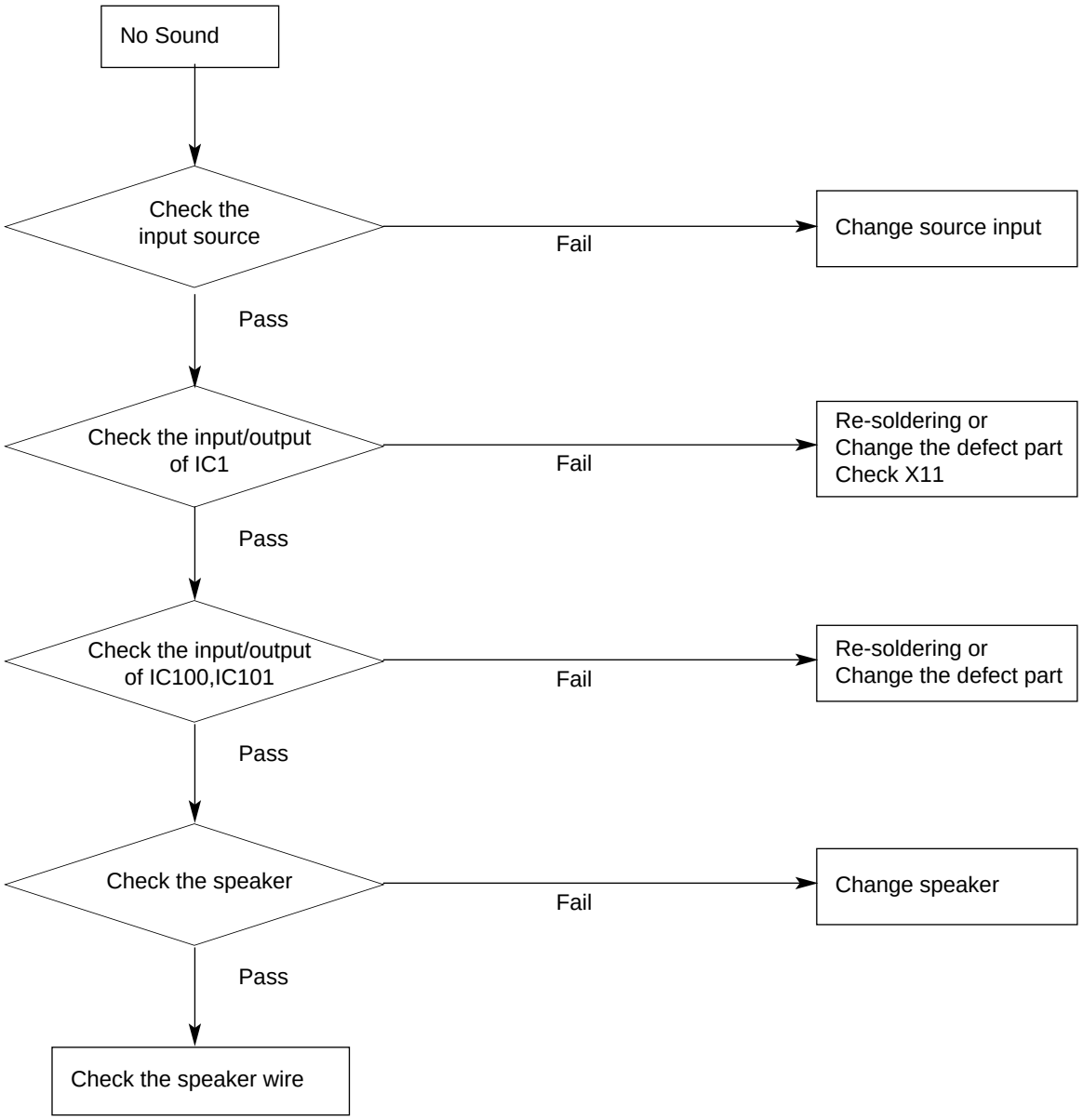
TROUBLESHOOTING



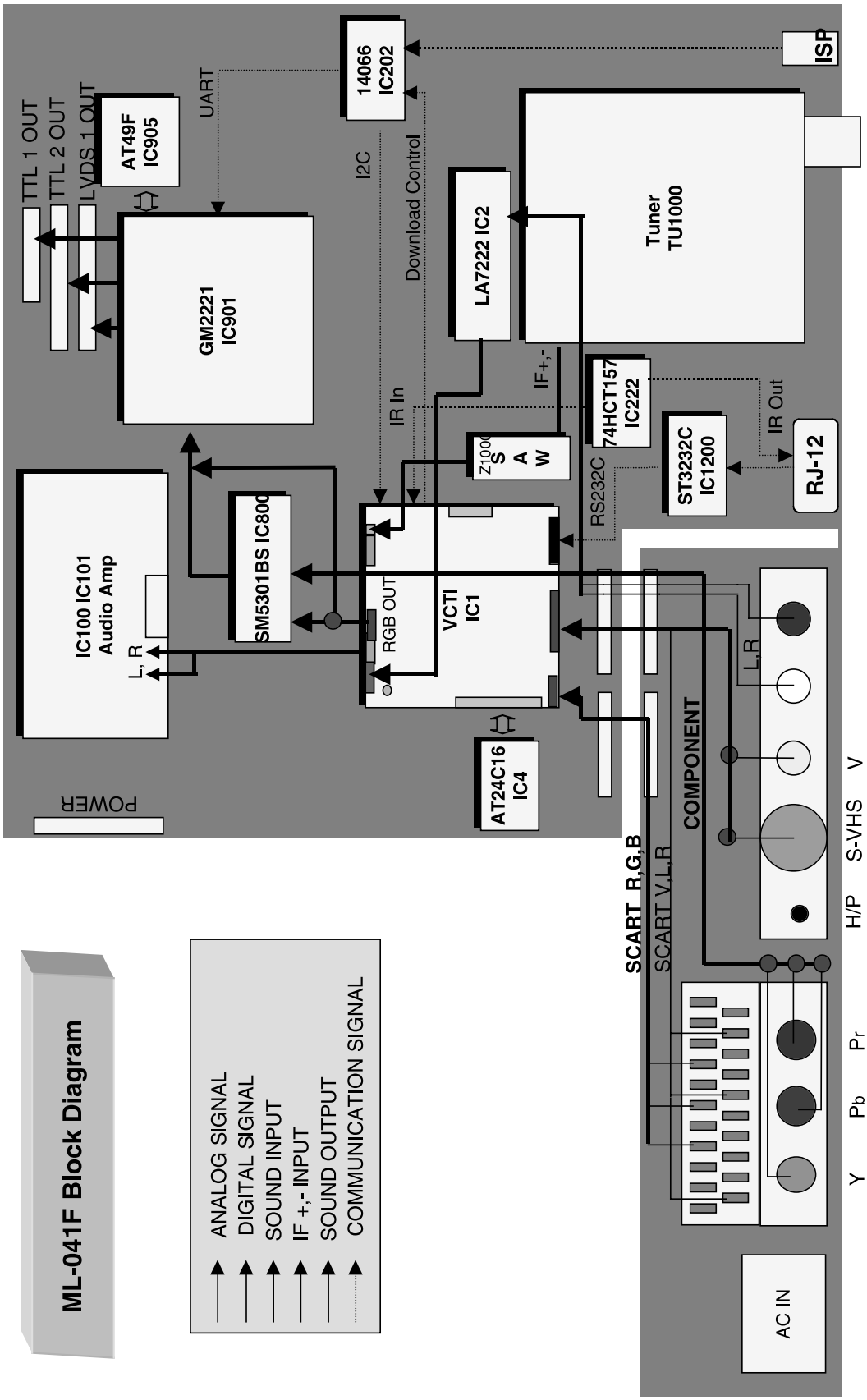

No Raster
:[B]Process
Check LED Status on display unit
Fail
Repeat A PROCESS
Check L900,L901 L902,L903
Fail
Change L900,L901, L902,L903
Pass
Check the input/ Output of IC901
Fail
Change IC901
Pass
Check inverter Connector or inverter
Fail
Change inverter connector or inverter
Pass
Check panel link Cable or module
Fail
Change panel link cable or module
Pass
Check input source cable and jack
Fail
Change module


No Raster on Component signal
Repeat
[A] Process
Pass
Check the signal of
L1200, L1202, L1203
Fail
Check JA1200 or
RCA CABLE
Pass
Check the input/
output of IC1
Fail
Re-soldering or
Change the defect part,
Check X11
Check the input/output
of IC800, IC851
Fail
Re-soldering or
Change the defect part
Pass
Check the input/
output of IC901
Fail
Re-soldering or
Change the defect part,
Check X900
Pass
Check input source cable and jack


No Raster on AV Signal
(Video, S-Video)
No Raster on TV(RF) signal
Repeat
[A] Process
Fail
Check the output of
TU1000
Fail
Check 5V, 33V of TU1000
Re-soldering or
Change the defect part
Pass
Check the signal of
L1209, L1210, L1212
Fail
Change L1209, L1210,
L1212
Pass
Check the input/output
of IC1
Fail
Re-soldering or
Change the defect part
Chek X11
Pass
Check the input/output
of IC800, IC851
Fail
Re-soldering or
Change the defect part
Pass
Check the input/output
of IC901
Fail
Re-soldering or
Change the defect part
Check X900
Pass
Check input source cable and jack


No Sound
Check the input source
Fail
Change source input
Pass
Check the input/output of IC1
Fail
Re-soldering or Change the defect part Check X11
Pass
Check the input/output of IC100,IC101
Fail
Re-soldering or Change the defect part
Pass
Check the speaker
Fail
Change speaker
Pass
Check the speaker wire

BLOCK DIAGRAM



BLOCK DIAGRAM DESCRIPTION

1. Video Controller Unit & Display Data Conversion Unit

The video controller unit receives the video signals inputted through the tuner, AV port (AV1, AV2, S-Video, SCART), and converts them into an analog RGB signal through the microcomputer (VCTI) combined with the video decoder that integrates various functions in one chip.

Either the analog RGB, SCART or PC RGB signal is selected by the switching IC and inputted to a scaler (GM2221), which is sent to the LCD module after being modified to an LVDS signal through the integrated LVDS IC.

Or, it is sent to the LCD module as a TTL output.

VCTi is the main microprocessor that handles video signal processing and sound signal processing. It also manages the RF signals received from the tuner.

The scaler can control timing to fit into the LCD panel, and can also control the size and position of the input signal.

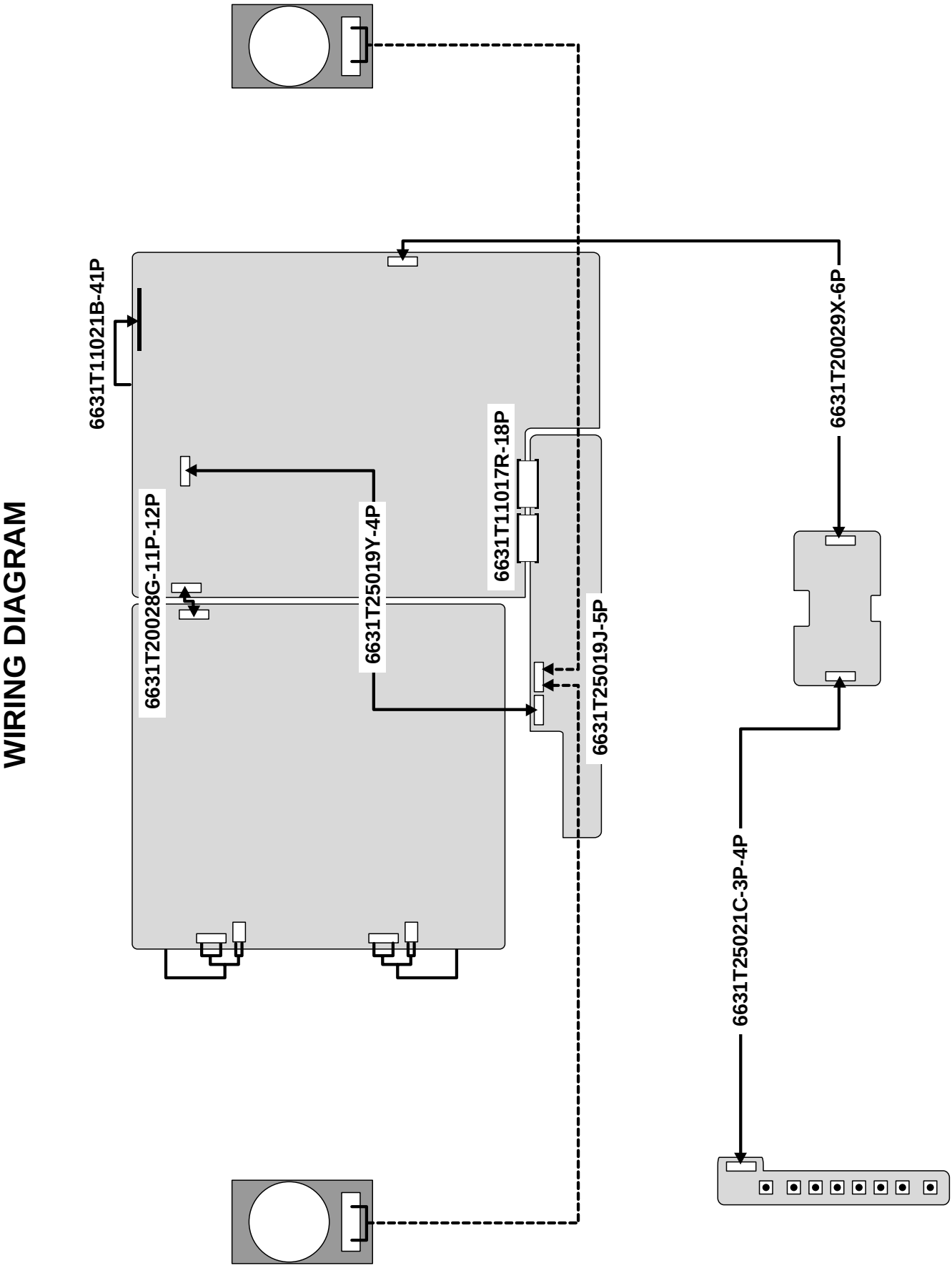
2. Power Supply Unit

The power supply unit provides 15V and 5V DC power to the mainboard.

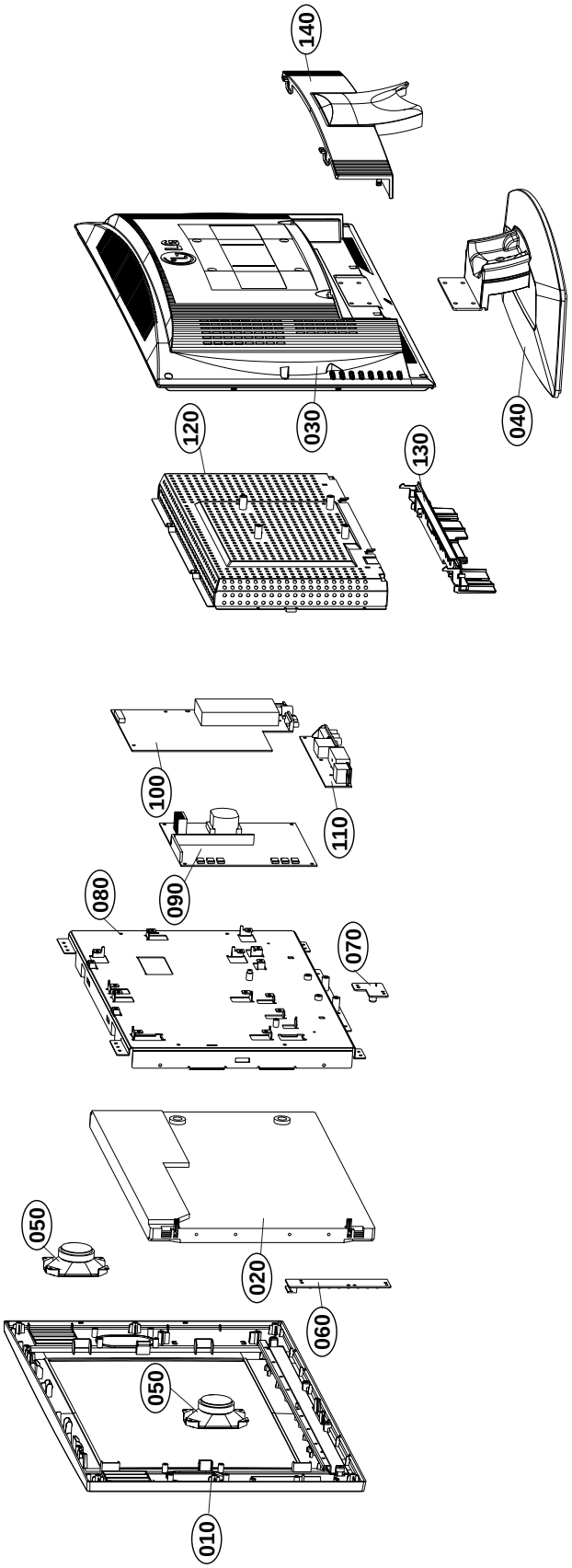
The PWM Step-Up DC/DC Converter circuit is used to generate the 33V used for the tuner.

15V power is directly used by the sound amplifier IC and is also used to generate 5V power through the regulator. 12V power is used for the LCD panel power, and 5V power is converted to 3.3V and 1.8V power through the regulator, which in turn supplies electrical power for ICs such as VCTI and scaler.

WIRING DIAGRAM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

No.	PART NO.	DESCRIPTION
010	3091TKD006H	CABINET ASSEMBLY, RZ-20LZ50 BRAND 3090TKD004A LGEMA PHANTOM
	3091TKD006A	CABINET ASSEMBLY, RZ/RT-20LZ50 BRAND 3090TKD004A SET
020	6304FLP188A	LCD(LIQUID CRYSTAL DISPLAY), LC201V02-A3KA LG PHILPS TFT COLOR PB FREE MODULE , SS D-IC
	6304FLP139A	LCD(LIQUID CRYSTAL DISPLAY), LC201V02-A3K3 LG PHILPS TFT COLOR 20.1" VGA,IPS,450NITS,LVDS
030	3809TKD006Z	BACK COVER ASSEMBLY, RZ-20LZ50C COMMERCIAL 3808TKD003 LGEMA PHANTOM
	3809TKD006Y	BACK COVER ASSEMBLY, 20LZ50C-ZA 3808TKD003 COMMERCIAL ONLY
040	3043TKK180J	TILT SWIVEL ASSEMBLY, RZ-20LZ50 NON LGEMA PHANTOM
	3043TKK180C	TILT SWIVEL ASSEMBLY, RZ/RT/RM-20LA80 NON STAND ASSY
050	6400GTTS01B	SPEAKER,FULLRANGE, N1527C-6603-2 TOPTONE FULL-RANGE(GENERAL) 4OHM 7/12W .DB 70 AUTOBAHN
060	6871TST980A	PWB(PCB) ASSEMBLY,SUB, RM/RT/RZ-20LZ50 CONTROL BOARD CONTROL TOTAL BRAND (MAIN ML-041B) LF
070	6871TST974A	PWB(PCB) ASSEMBLY,SUB, RM/RT/RZ-20LZ50 IR BOARD LED & P/SW TOTAL BRAND (MAIN ML-041B) LF
080	4951TKS175J	METAL ASSEMBLY, FRAME METAL, ASSY 20LZ50(LPL,CKD)
	4951TKS175H	METAL ASSEMBLY, FRAME METAL, ASSY 20LZ50(LPL)
090	6871TPT280K	PWB(PCB) ASSEMBLY,POWER, RM(RZ)20LA70(77,50,90) POWER TOTAL LIEN CHANG LIPS FOR LPL 20.1 PB FREE
100	3313T20008A	MAIN TOTAL ASSEMBLY, 20LZ5RC-ZA(2) BRAND ML-041F
110	68719ST784A	PWB(PCB) ASSEMBLY,SUB, SUB T.T ML041E VIDEO TOTAL BRAND(COMMERCIAL)
120	4951TKK186N	METAL ASSEMBLY, SHIELD METAL (LPL IPS MODULE) C/SKD 20LZ50
	4951TKK186M	METAL ASSEMBLY, SHIELD METAL (LPL IPS MODULE) 20LZ50/20LA80
130	3551TKK526W	COVER ASSEMBLY, 20LZ5RC-ZA REAR A/V. RJ-12 JACK COMMERCIAL(FOR EU)
140	3550TKK996B	COVER, RT/RZ-20LZ50C REAR COVER C/SKD

REPLACEMENT PARTS LIST

For Capacitor & Resistors, the charactors at 2nd and 3rd digit in the P/No. means as follows;

CC, CX, CK, CN, CH : Ceramic
CQ : Polyestor
CE : Electrolytic
CF : Fixed Film

RD : Carbon Film
RS : Metal Oxide Film
RN : Metal Film
RH : CHIP, Metal Glazed(Chip)
RR : Drawing

DATE: 2005. 10. 12.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		MAIN BOARD		
		CAPACITOR		
		C1008	0CE227CF638	"220UF SHL,SD 16V M FM5 TP 5"
		C1101	0CE227BH638	220U KME 25V M FM5 TP5
		C1104	0CE227BH638	220U KME 25V M FM5 TP5
		C1140	0CE227BH638	220U KME 25V M FM5 TP5
		C1152	0CE107BK638	100UF KME 50V M FM5 TP5
		C129	181-007F	"MPE ECQ-V1H224JL3(TR), 50V"
		C130	181-007F	"MPE ECQ-V1H224JL3(TR), 50V"
		C1215	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C1216	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C1223	0CH5102K416	1000PF 50V 5% NP0 2012 R/TP
		C1224	0CH5102K416	1000PF 50V 5% NP0 2012 R/TP
		C1003	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C1007	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C1010	0CK273DK51A	27000PF 2012 50V 10% B(Y5P)
		C1015	0CH5390K416	39PF 50V 5% NP0 2012 R/TP
		C1016	0CH5390K416	39PF 50V 5% NP0 2012 R/TP
		C107	0CK225DFK4A	"2.2UF 2012 16V 20%,-20% F(Y"
		C109	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C110	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C1108	0CK106EF56A	10UF 3216 16V 10% X7R R/TP
		C1112	0CK225DFK4A	"2.2UF 2012 16V 20%,-20% F(Y"
		C1113	0CK225DFK4A	"2.2UF 2012 16V 20%,-20% F(Y"
		C1114	0CK106EF56A	10UF 3216 16V 10% X7R R/TP
		C113	0CK225DFK4A	"2.2UF 2012 16V 20%,-20% F(Y"
		C1150	0CH3105F946	"1UF 16V 80%,-20% F(Y5V) 201"
		C1151	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C1226	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C127	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C128	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C135	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C136	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C15	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C16	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C19	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C206	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C4	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C41	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C42	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C44	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C45	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C49	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C6	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C7	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C8	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C803	0CH3105F946	"1UF 16V 80%,-20% F(Y5V) 201"
		C804	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C808	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C810	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C812	0CH3105F946	"1UF 16V 80%,-20% F(Y5V) 201"
		C851	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C854	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C855	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"

DATE: 2005. 10. 12.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C858	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C861	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C865	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C866	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C869	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C874	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C875	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C877	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C9	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C900	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C902	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C909	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C910	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C917	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C920	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C925	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C926	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C927	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C928	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C929	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C930	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C934	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C935	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C936	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C937	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C938	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C939	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C940	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C943	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C944	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C945	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C946	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C947	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C948	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C949	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C950	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C955	0CH5390K416	39PF 50V 5% NP0 2012 R/TP
		C956	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C964	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C965	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C967	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C968	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C97	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C970	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C1001	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C1002	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C1004	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C1005	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C11	0CK474CH94A	"0.47UF 1608 25V 80%,-20% R/"
		C114	0CK225DFK4A	"2.2UF 2012 16V 20%,-20% F(Y"
		C115	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C116	0CK562CK51A	5600PF 1608 50V 10% R/TP B(
		C117	0CK562CK51A	5600PF 1608 50V 10% R/TP B(
		C118	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R

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		C12	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C1225	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C1227	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C1228	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C125	0CK105EK56A	1UF 3216 50V 10% X7R R/TP
		C126	0CK105EK56A	1UF 3216 50V 10% X7R R/TP
		C200	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C22	0CK822CK56A	8200PF 1608 50V 10% X7R R/T
		C23	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C24	0CK822CK56A	8200PF 1608 50V 10% X7R R/T
		C25	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C26	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C27	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C28	0CK334CF94A	"0.33UF 1608 16V 80%,-20% F("
		C29	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C3	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C30	0CK334CF94A	"0.33UF 1608 16V 80%,-20% F("
		C31	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C32	0CK334CF94A	"0.33UF 1608 16V 80%,-20% F("
		C33	0CK334CF94A	"0.33UF 1608 16V 80%,-20% F("
		C34	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C35	0CK334CF94A	"0.33UF 1608 16V 80%,-20% F("
		C37	0CK334CF94A	"0.33UF 1608 16V 80%,-20% F("
		C40	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C52	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C67	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C75	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C800	0CK105CF94A	"1UF 1608 16V 80%,-20% R/TP"
		C801	0CK105CF94A	"1UF 1608 16V 80%,-20% R/TP"
		C802	0CK105CF94A	"1UF 1608 16V 80%,-20% R/TP"
		C807	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C811	0CK105CF94A	"1UF 1608 16V 80%,-20% R/TP"
		C816	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C82	0CK474CH94A	"0.47UF 1608 25V 80%,-20% R/"
		C901	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C903	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C904	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C905	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C906	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C911	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C912	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C913	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C914	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C915	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C916	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C918	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C919	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C921	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C922	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C961	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C1201	0CH6221K416	220PF 2012 50V 5% NP0 -
		C1202	0CH6101K416	100PF 50V 5% NP0 2012 R/TP
		C1207	0CH6471K416	470PF 2012 50V 5% NP0 R/TP
		C1208	0CH6471K416	470PF 2012 50V 5% NP0 R/TP
		C1221	0CH6331K416	330PF 2012 50V 5% NP0 R/TP
		C1230	0CH6101K416	100PF 50V 5% NP0 2012 R/TP
		C13	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C14	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C2	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C20	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C21	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C43	0CH6102K406	1000PF 50V 5% SL 2012 R/TP

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		C46	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C50	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C59	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C86	0CH6102K406	1000PF 50V 5% SL 2012 R/TP
		C923	0CH6080K116	8PF 2012 50V 0.5 PF C0G R/T
		C924	0CH6080K116	8PF 2012 50V 0.5 PF C0G R/T
		CC100	0CH6101K416	100PF 50V 5% NP0 2012 R/TP
		C121	0CC100CK11A	10PF 1608 50V 0.5 PF R/TP N
		C122	0CC100CK11A	10PF 1608 50V 0.5 PF R/TP N
		C201	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C204	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C47	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C48	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C53	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C56	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C57	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C58	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C74	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C83	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C85	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C88	0CC390CK41A	39PF 1608 50V 5% R/TP NP0
		C889	0CC331CK41A	330PF 1608 50V 5% R/TP NP0
		C89	0CC390CK41A	39PF 1608 50V 5% R/TP NP0
		C890	0CC331CK41A	330PF 1608 50V 5% R/TP NP0
		C891	0CC331CK41A	330PF 1608 50V 5% R/TP NP0
		C98	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C1106	0CE477BD618	470UF KME TYPE 10V 20% FL T
		C1107	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C123	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C124	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C131	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C132	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C133	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C134	0CE477BH618	470UF KME TYPE 25V 20% FL T
		C1	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C108	0CE476VH6DC	47UF MV 25V 20% R/TP(SMD) S
		C1100	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1102	0CE227WF6DC	220UF MVK 16V 20% R/TP(SMD)
		C1103	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1109	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C111	0CE475WJ6DC	4.7UF MVK 35V 20% R/TP(SMD)
		C1115	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1118	0CE227WF6DC	220UF MVK 16V 20% R/TP(SMD)
		C112	0CE475WJ6DC	4.7UF MVK 35V 20% R/TP(SMD)
		C1124	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1130	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1132	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1134	0CE227WF6DC	220UF MVK 16V 20% R/TP(SMD)
		C1135	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1149	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C119	0CH8106F691	10UF 16V 20% 105STD (CYL) R
		C120	0CH8106F691	10UF 16V 20% 105STD (CYL) R
		C1229	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C17	0CE475WJ6DC	4.7UF MVK 35V 20% R/TP(SMD)
		C5	0CE475WJ6DC	4.7UF MVK 35V 20% R/TP(SMD)
		C55	0CE475VK6DC	4.7UF MV 50V 20% R/TP(SMD)
		C60	0CE475VK6DC	4.7UF MV 50V 20% R/TP(SMD)
		C852	0CH8476F691	47UF 16V 20% 105STD (CYL) R
		C856	0CH8476F691	47UF 16V 20% 105STD (CYL) R
		C859	0CH8476F691	47UF 16V 20% 105STD (CYL) R
		C87	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C876	0CH8106F691	10UF 16V 20% 105STD (CYL) R

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		C96	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C99	0CH8106F691	10UF 16V 20% 105STD (CYL) R
		CC101	0CH8476F691	47UF 16V 20% 105STD (CYL) R
		DIODEs		
		D100	0DRFC00288A	SS14 FAIR CHILD R/TP SMA 20
		D101	0DRFC00288A	SS14 FAIR CHILD R/TP SMA 20
		D1150	0DRGS00199A	UF4001 GENERAL SEMICONDUCTO
		D102	0DS181009AA	KDS181 TP KEC SOT-23 80V
		D103	0DS181009AA	KDS181 TP KEC SOT-23 80V
		D107	0DS226009AA	KDS226 TP KEC - 80V - - 4NS
		ZD1200	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1206	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1207	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1212	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1213	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1214	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD104	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD105	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD209	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		D1151	0DZ330009DF	MTZJ33B TP ROHM-K DO34 0.5W
		IC		
		IC905	0IZZ9H0057A	0IMMRALD039A ATMEL SIP 32PI
		IC4	0IMCRAL006A	"AT24C16AN-10SU-2.7,LF ATMEL"
		IC903	0IMCRAL006A	"AT24C16AN-10SU-2.7,LF ATMEL"
		IC100	0IMCRMZ002A	MP7720 MONOLITHIC POWER SYS
		IC101	0IMCRMZ002A	MP7720 MONOLITHIC POWER SYS
		IC1200	0IMCRSG010A	ST3232CDR SGS-THOMSON SOP16
		IC1	0IPRPMN003C	VCT49XYF C7(NTSC+PAL) MICRO
		IC901	0IPRPGN015C	"GM2221-BC-LF,PB FREE GENESI"
		IC1103	0IPMGSG018D	LD1086DT18TR-LF SGS-THOMSON
		IC1108	0IMCRKE010A	KIA7812AF KEC 2P DPACK R/TP
		IC1110	0IPMG00003A	"KIA78M08F KEC 3P,DPAK R/TP"
		IC1111	0IPMG00004A	"KIA7805AF KEC 3P,DPAK R/TP"
		IC1112	0IMCRKE010A	KIA7812AF KEC 2P DPACK R/TP
		IC1113	0IPMG00003A	"KIA78M08F KEC 3P,DPAK R/TP"
		IC1106	0IPMGSG018D	LD1086DT18TR-LF SGS-THOMSON
		IC1114	0IPMGFA061A	"FAN1587AD33X FAIRCHILD 3P,D"
		IC1115	0IPMGFA061A	"FAN1587AD33X FAIRCHILD 3P,D"
		IC3	0IKE702700D	"KIA7027AF 3, SOT-89 TP RESE"
		IC202	0ISTL00026A	"MC14066BDR2G,LF ON SEMI 14P"
		IC222	0IMCRTI001A	"SN74HCT157DR,LF TEXAS INST"
		COIL & CORE & INDUCTOR		
		L104	6140TBZ045A	"38.5UH(DIP), 6A, P7.5, DR8."
		L105	6140TBZ045A	"38.5UH(DIP), 6A, P7.5, DR8."
		L1150	150-985B	DR8*11 2.4MH 0.16MM 270.5
		L1202	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1203	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1206	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1207	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1208	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1211	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1213	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1214	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1215	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1100	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L1101	6210TCE001G	HH-1M3216-501 CERATEC 3216M

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		L1103	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L1105	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L1106	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L1107	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L200	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L201	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L202	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L203	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L204	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L205	6210TCE001A	HB-1S2012-080JT CERATEC 201
		L853	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L900	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L901	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L902	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L903	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		LL1107	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L1102	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L1231	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L800	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L906	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L908	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		Z1000	6200QL3002F	"X6966M EPCOS ST SIP5K, 6200"
		L1200	0LC1020101A	1UH 10% 2012 R/TC FI-B2012-
		L1212	0LC0233002A	3.3UH CERATECH R/TP
		L10	0LC1032101A	10UH 10% 3216 R/TC FI-C3216
		L1001	0LC1020101A	1UH 10% 2012 R/TC FI-B2012-
		L1002	0LC1032101A	10UH 10% 3216 R/TC FI-C3216
		L15	0LC1032101A	10UH 10% 3216 R/TC FI-C3216
		L2	0LC1032101A	10UH 10% 3216 R/TC FI-C3216
		L8	0LC1032101A	10UH 10% 3216 R/TC FI-C3216
		L888	0LC0233002A	3.3UH CERATECH R/TP
		L889	0LC0233002A	3.3UH CERATECH R/TP
		L890	0LC0233002A	3.3UH CERATECH R/TP
		FET & TRANSISTOR		
		Q1150	0TR322809AB	KTC3228-Y(KTC2383) TP KEC T
		Q1151	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q603	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		QQ101	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		QQ105	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q100	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q1000	0TR388109AA	KTC3881 CHIP TP KEC - -
		Q101	0TR150400BA	CHIP 2SA1504S(ASY) BK KEC -
		Q1100	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q12	0TR150400BA	CHIP 2SA1504S(ASY) BK KEC -
		Q13	0TR150400BA	CHIP 2SA1504S(ASY) BK KEC -
		Q14	0TR150400BA	CHIP 2SA1504S(ASY) BK KEC -
		Q15	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q2	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q3	0TR150400BA	CHIP 2SA1504S(ASY) BK KEC -
		IC902	0TF492509AA	SI4925DY TP TEMIC 30V 6.1A
		ICC1200	0TF492509AA	SI4925DY TP TEMIC 30V 6.1A
		IC1104	0TFVI80005A	VISHAY SI4963DY R/TP SO-8 -
		IC1107	0TF492509AA	SI4925DY TP TEMIC 30V 6.1A
		RESISTORs		
		R1200	0RH0682D622	68 OHM 1 / 10 W 2012 5.00%
		R1201	0RH0222D622	22 OHM 1 / 10 W 2012 5.00%
		R1202	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1205	0RH0222D622	22 OHM 1 / 10 W 2012 5.00%

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		R1206	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1217	0RH4703D622	470K OHM 1 / 10 W 2012 5.00
		R1218	0RH5101D622	5.1K OHM 1 / 10 W 2012 5.00
		R1219	0RH5101D622	5.1K OHM 1 / 10 W 2012 5.00
		R1220	0RH4703D622	470K OHM 1 / 10 W 2012 5.00
		R1224	0RJ1800H680	180 OHM 1/2 W 5% 5025 R/TP
		R1225	0RJ1800H680	180 OHM 1/2 W 5% 5025 R/TP
		R1230	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1231	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1232	0RH5101D622	5.1K OHM 1 / 10 W 2012 5.00
		R1233	0RH4703D622	470K OHM 1 / 10 W 2012 5.00
		R1234	0RH5101D622	5.1K OHM 1 / 10 W 2012 5.00
		R1235	0RH4703D622	470K OHM 1 / 10 W 2012 5.00
		C931	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		C932	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		CC102	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		L1104	0RH2202D622	22K OHM 1 / 10 W 2012 5.00%
		L905	0RH0222D622	22 OHM 1 / 10 W 2012 5.00%
		R1002	0RH1501D622	1.5K OHM 1 / 10 W 2012 5.00
		R1004	0RH3000D622	300 OHM 1 / 10 W 2012 5.00%
		R1010	0RH7501D622	7.5K OHM 1 / 10 W 2012 5.00
		R1011	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R1012	0RH7502D622	75K OHM 1 / 10 W 2012 5.00%
		R106	0RH1500D622	150 OHM 1 / 10 W 2012 5.00%
		R107	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R1106	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R1108	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R1109	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R1150	0RH0102D622	10 OHM 1 / 10 W 2012 5.00%
		R1151	0RH4700D622	470 OHM 1 / 10 W 2012 5.00%
		R1152	0RH1001D622	1K OHM 1 / 10 W 2012 5.00%
		R1153	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R1154	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R1155	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R126	0RH4701D622	4.7K OHM 1 / 10 W 2012 5.00
		R128	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R129	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R132	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R133	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R134	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R135	0RH1003D622	100K OHM 1 / 10 W 2012 5.00
		R140	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R141	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R142	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R143	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R144	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R145	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R146	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R147	0RH0392D622	39 OHM 1 / 10 W 2012 5.00%
		R148	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R149	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R218	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R230	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R240	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R36	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R57	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R59	0RH1201D622	1.2K OHM 1 / 10 W 2012 5.00
		R817	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R818	0RH8200D622	820 OHM 1 / 10 W 2012 5.00%
		R822	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R908	0RH0822D622	82 OHM 1 / 10 W 2012 5.00%
		R910	0RH0822D622	82 OHM 1 / 10 W 2012 5.00%

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R915	0RH3600D622	CHIP 360-J 1/10 W
		R919	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R934	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R961	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R964	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R989	0RH8200D622	820 OHM 1 / 10 W 2012 5.00%
		R995	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R999	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		RR1	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR10	0RH0222D622	22 OHM 1 / 10 W 2012 5.00%
		RR101	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR102	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR103	0RH2201D622	2.2K OHM 1 / 10 W 2012 5.00
		RR104	0RH2201D622	2.2K OHM 1 / 10 W 2012 5.00
		RR150	0RH4702D622	47K OHM 1 / 10 W 2012 5.00%
		RR151	0RH3301D622	3.3K OHM 1 / 10 W 2012 5.00
		RR153	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR160	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR2	0RH0222D622	22 OHM 1 / 10 W 2012 5.00%
		RR3	0RH0222D622	22 OHM 1 / 10 W 2012 5.00%
		RR5	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR6	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR7	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR8	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		RR80	0RH1001D622	1K OHM 1 / 10 W 2012 5.00%
		RR81	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		RR9	0RH0000D622	0 OHM 1 / 10 W 2012 5.00% D
		R1	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R10	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R1001	0RJ0562D677	56 OHM 1/10 W 5% 1608 R/TP
		R1003	0RJ8200D677	820 OHM 1/10 W 5% 1608 R/TP
		R1005	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R1014	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R11	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R1105	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R1107	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R124	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R125	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R127	0RJ2701D677	2.7K OHM 1/10 W 5% 1608 R/T
		R130	0RJ1202D677	12K OHM 1/10 W 5% 1608 R/TP
		R131	0RJ1202D677	12K OHM 1/10 W 5% 1608 R/TP
		R136	0RH8202D622	82K OHM 1 / 10 W 2012 5.00%
		R137	0RH8202D622	82K OHM 1 / 10 W 2012 5.00%
		R138	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R139	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R15	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP
		R16	0RJ2200D677	220 OHM 1/10 W 5% 1608 R/TP
		R17	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP
		R18	0RJ2200D677	220 OHM 1/10 W 5% 1608 R/TP
		R19	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP
		R2	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R20	0RJ2200D677	220 OHM 1/10 W 5% 1608 R/TP
		R21	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R219	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R22	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R221	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R222	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R223	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R224	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R225	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R226	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R227	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R229	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R23	0RJ2701D677	2.7K OHM 1/10 W 5% 1608 R/T
		R24	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R25	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R28	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R29	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R3	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R34	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R4	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R41	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R42	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R45	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R46	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R5	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R50	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R51	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R52	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R53	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R54	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R55	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R56	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R58	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R60	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R62	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R64	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R66	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R68	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R69	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R70	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R72	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R73	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R74	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R75	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R76	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R77	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R78	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R80	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/TP
		R834	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R836	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R837	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R888	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R889	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R890	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R901	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R902	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R904	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R907	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R909	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP
		R911	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R912	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R913	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R914	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R917	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R929	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R931	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R932	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R935	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R936	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R938	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R939	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R940	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R941	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R942	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R943	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R944	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R945	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R946	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R947	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R950	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R952	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R953	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R954	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R96	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R980	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R981	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R982	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R983	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R984	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R988	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R991	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		R992	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/T
		RU1	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		RUI1	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		OTHERs		
		X11	6202TST003C	HC-49/SM5H KONY CHIP 20.25M
		X900	6202VDT002B	SX-1 SUNNY SC14.3MHZ +/- 30
		IC905	6620F00017A	CCSD-32T-SM WOOYOUNG 32P PL
		P1205	6620K00007C	"ISHENG,7007,M.MOUSE,60MM,YH"
		TU1000	6700VS0003E	TAEW-G053D LGIT MULTI VS PA
		CONTROL BOARD		
		R2200	0RN1101F409	1.10K 1/6W 1% TA52
		R2201	0RN8200F409	820 1/6W 1% TA52
		R2202	0RN5600F409	560 1/6W 1% TA52
		R2203	0RN4700F409	470 OHM 1/6 W 1.00% TA52
		R2204	0RN3900F409	390 1/6W 1% TA52
		R2205	0RN3300F409	330 1/6W 1% TA52
		R2206	0RN2700F409	270 1/6W 1% TA52
		R2207	0RN3301F409	3.3K OHM 1/6 W 1.00% TA52
		R2208	0RN2000F409	200 1/6W 1% TA52
		SW2200	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2201	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2202	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2203	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2204	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2205	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2206	140-313B	TACT 2LEAD 160G(TA) LG C&D
		SW2207	140-313B	TACT 2LEAD 160G(TA) LG C&D
		IR BOARD		
		C2101	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		L2101	6210TCE001A	HB-1S2012-080JT CERATEC 201
		Q2101	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q2102	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		Q2103	0TR387500AA	CHIP 2SC3875S(ALY) BK KEC -
		R2101	0RH1001D622	1K OHM 1 / 10 W 2012 5.00%
		R2102	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R2103	0RH5600D622	560 OHM 1 / 10 W 2012 5.00%
		R2104	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R2105	0RH1001D622	1K OHM 1 / 10 W 2012 5.00%

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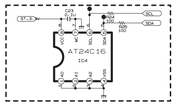
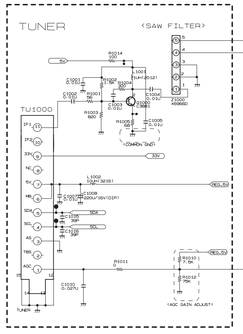
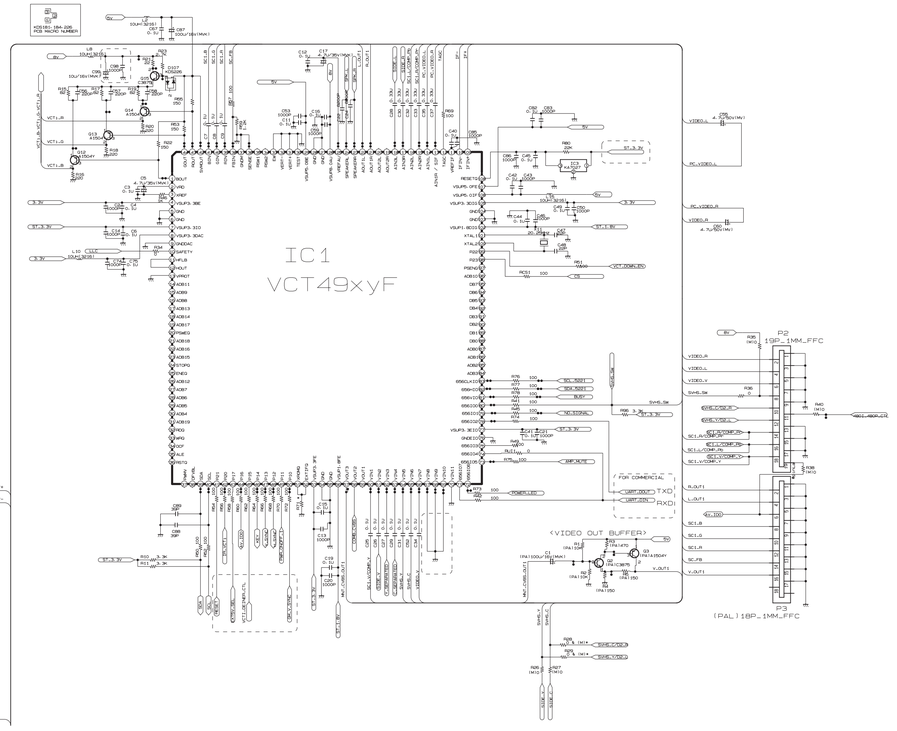
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R2106	0RH1000D622	100 OHM 1 / 10 W 2012 5.00%
		R2111	0RH4301D622	4.3K OHM 1 / 10 W 2012 5.00
		LED2100	0DL200000CA	SAM5670(DL-2LRG) BK Y-GREEN
		PA2101	6712000013A	TSOP4438SO1 VISHAY 38KHZ AN
		VIDEO BOARD		
		C1200	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C1209	0CH8226F691	22UF 16V 20% 105STD (CYL) R
		C1210	0CH6471K416	470PF 2012 50V 5% NP0 R/TP
		C1211	0CH8226F691	22UF 16V 20% 105STD (CYL) R
		C1212	0CH6471K416	470PF 2012 50V 5% NP0 R/TP
		C1217	0CH3104K946	"100000PF 50V 80%,-20% F(Y5V"
		C1218	0CH6331K416	330PF 2012 50V 5% NP0 R/TP
		C1219	0CH6331K416	330PF 2012 50V 5% NP0 R/TP
		C1220	0CH6331K416	330PF 2012 50V 5% NP0 R/TP
		L1204	0RH3001D622	3K OHM 1 / 10 W 2012 5.00%
		L1205	0RH3001D622	3K OHM 1 / 10 W 2012 5.00%
		L1209	0LC0233002A	3.3UH CERATECH R/TP
		L1210	0LC0233002A	3.3UH CERATECH R/TP
		R1203	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1204	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1207	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1210	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1212	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1214	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1215	0RH3902D622	39K OHM 1 / 10 W 2012 5.00%
		R1216	0RH5102D622	51K OHM 1 / 10 W 2012 5.00%
		R1221	0RH1001D622	1K OHM 1 / 10 W 2012 5.00%
		R1222	0RH1001D622	1K OHM 1 / 10 W 2012 5.00%
		R1226	0RH0472D622	47 OHM 1 / 10 W 2012 5.00%
		R1227	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1228	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		R1229	0RH0752D622	75 OHM 1 / 10 W 2012 5.00%
		ZD1210	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1211	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1215	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1216	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1217	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1218	0DZ620009HB	UDZ S 6.2B TP ROHM SOD323 2
		ZD1219	0DZ120009CF	UDZ 12B TP ROHM-K SOD323 20

VCTI







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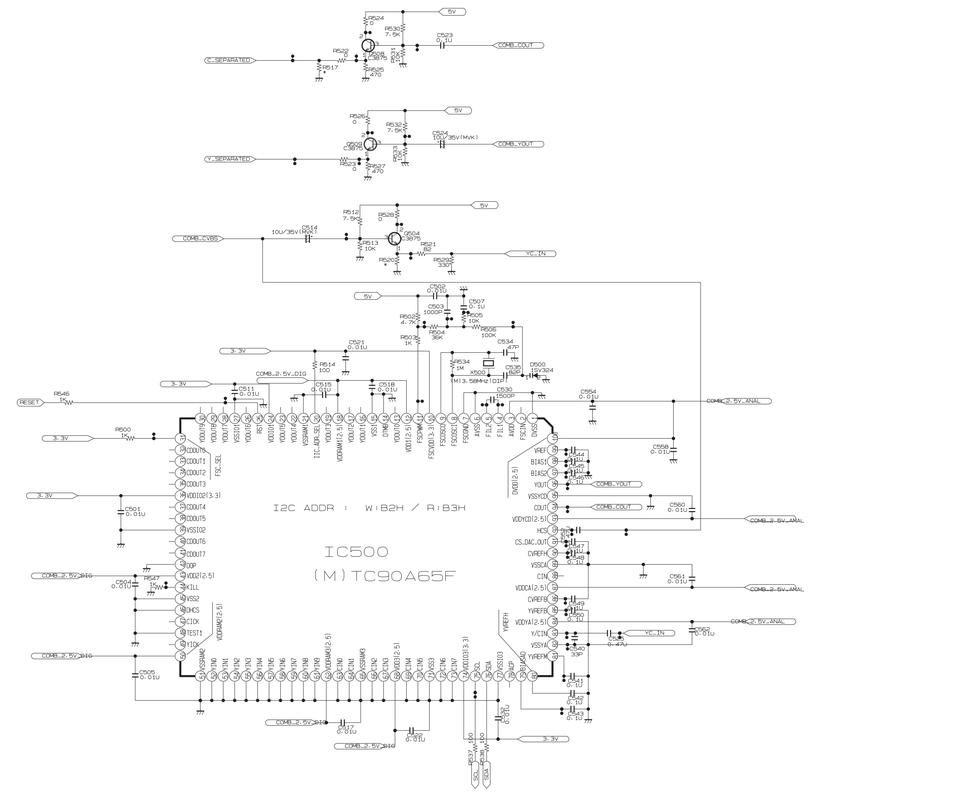

SCALER

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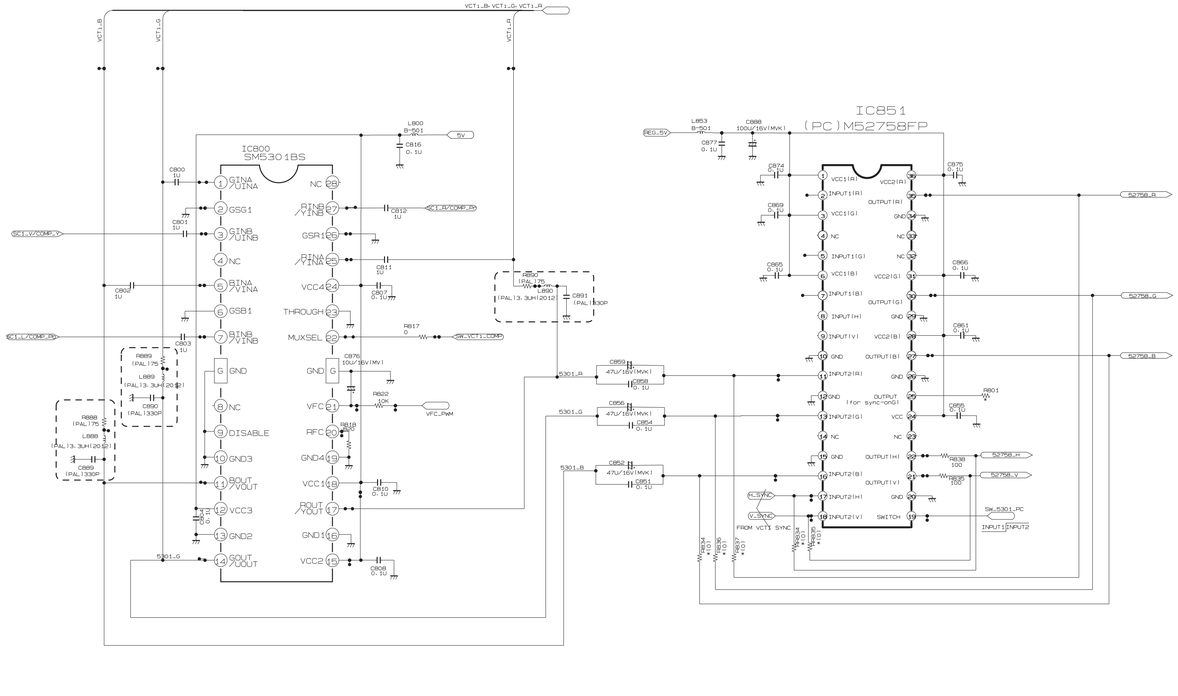

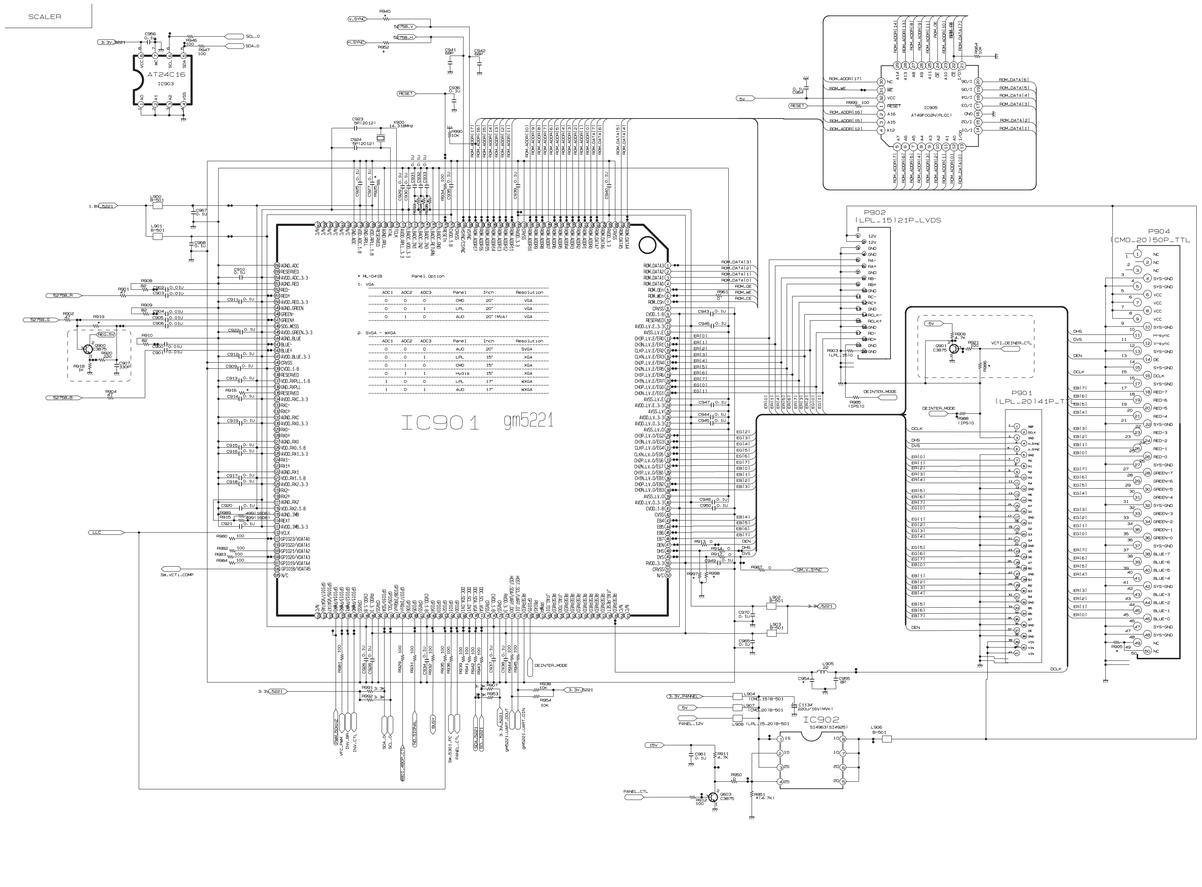

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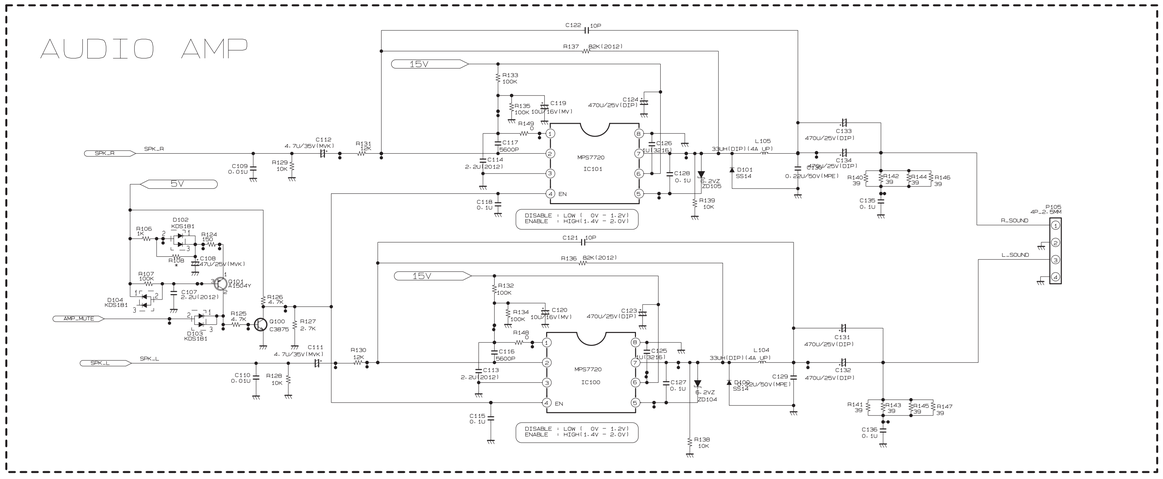

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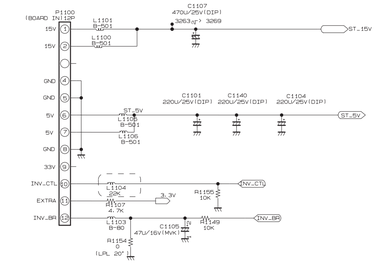

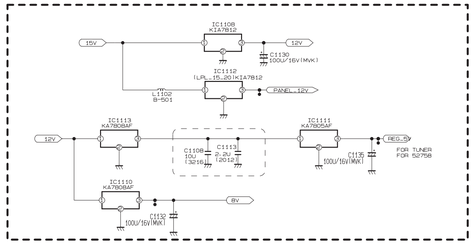

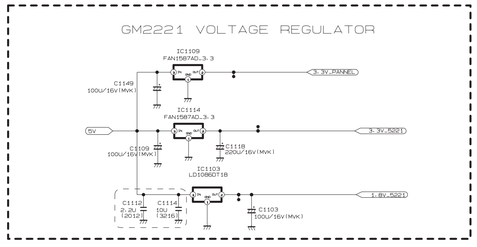

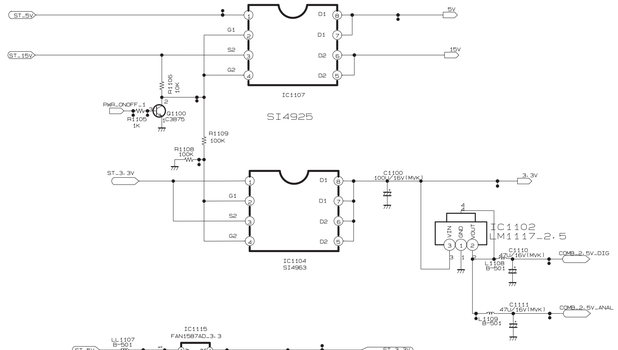

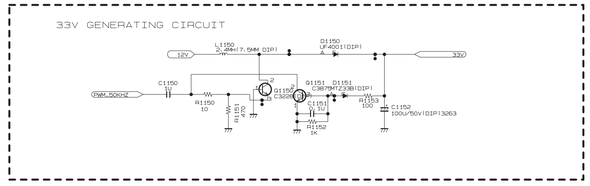

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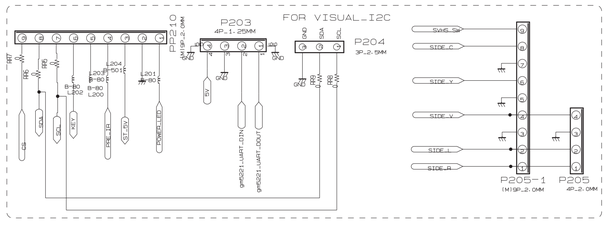

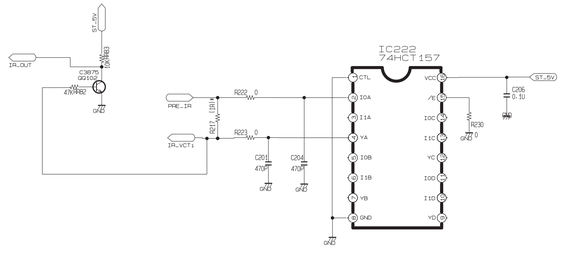

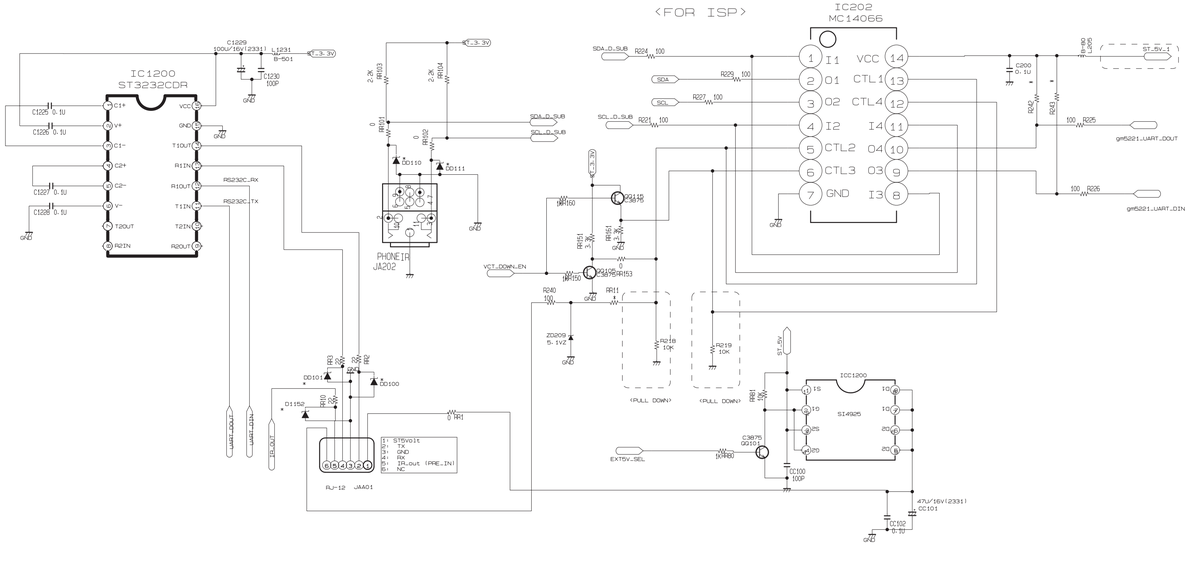

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